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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,866	08/21/2003	Yasunari Hisamitsu	50195-380	6867

7590

05/18/2006

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Washington, DC 20005-3096

EXAMINER
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ECHELMEYER, ALIX ELIZABETH

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

On

<b>Office Action Summary</b>	<b>Application No.</b> 10/644,866	<b>Applicant(s)</b> HISAMITSU ET AL.	
	<b>Examiner</b> Alix Elizabeth Echelmeyer	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8-21-03, 3-2-04, 4-7-05</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. Acknowledgment of Applicants' claim to priority is made.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-12, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roh (US Pre-Grant Publication 2003/0072996).

Roh teaches a secondary batter comprising a plurality of unit cells. The cells contain separators with projection terminals. The terminals are aligned in two columns, thus forming several rows of two terminals along the side of the stack. The cells are stacked and the cells are connected in parallel (Figure 3, [0026], [0034], [0038]-[0042]).

Roh fails to teach that the cells can be stacked and connected in parallel. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to connect the stacks in series instead of parallel if a larger voltage was desired instead of a larger current.

As for claim 4, Roh teaches the plurality of unit cells and the tabs in a plurality of rows.

With regard to claim 5, Roh discloses the claimed invention except for the tabs on opposite sides of the stack. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place more tabs on the opposite side of each separator plate, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. MPEP 2144.04 (VI)

As for claim 6, Roh teaches that the tabs are used to connect the plurality of unit cells in the stack direction. Roh discloses the claimed invention except for the use of the tabs to connect a plurality of stacks. It would have been obvious to one having ordinary skill in the art at the time the invention was made to take perhaps half of the stack, turn it into its own stack, and attach it to the other stack by the tabs as taught explicitly by Roh, since it has been held that rearranging parts of an invention involves only routine skill in the art. MPEP 2144 (VI)

Regarding claims 7 and 9, Roh teaches that each unit battery includes a positive electrode active material layer, a negative electrode active material layer, a solid electrolyte, and a current collector ([0005]).

As for claim 8, Roh teaches the battery of claim 7. The positive electrode active material, the negative electrode active material, or both would inherently contain some of the electrolyte because of the nature of batteries of this type.

Regarding claim 10, Roh teaches that the negative electrode active material contains lithium metal, carbonate, graphite, etc. ([0007]).

With regard to claims 11 and 12, Roh teaches that the negative electrode active material contains carbon powder ([0022]). Roh is silent on the carbon material from

which the carbon powder is made; thus the carbon powder could be made of a hard carbon material.

Regarding claim 20, Roh teaches a method for producing the lithium ion secondary battery described above (abstract; [0024]-[0027]).

3. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roh as applied to claim 1 above, and further in view of Dahlstrand et al. (US Patent Number 3,208,772).

The teachings of Roh as discussed above are incorporated herein.

Roh teaches the plurality of unit cells and the projections, or tabs, but fails to teach the tabs deviating one from the other in one direction intersecting the stack direction.

Regarding claims 2 and 3, Dahlstrand et al. teach a stack of papers, each member of the stack having a tab member extending from the outer edge. The tab members are in a vertically spaced relationship (Figure; column 2 lines 50-56). The relationship between the tabs in Dahlstrand et al. is exactly the same as the relationship of the tabs of the instant application. Dahlstrand et al. further teach that the advantage of the relationship between the tabs is that they are readily observed.

The easy access of the tabs of Dahlstrand et al. by placing them in the vertically spaced relationship as seen in the figure solves the same problem that the tabs of Roh encounter: by spacing the tabs of Roh in the same manner as the tabs of Dahlstrand et al., the tabs of Roh are made more easily accessible.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to place the tabs of Roh in the configuration of the tabs of Dahlstrand et al. in order to make the tabs of Roh more easily accessible.

4. Claims 13 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roh as applied to claim 1 above, and further in view of Nakagawa et al. (US Pre-Grant Publication 2003/0232237).

The teachings of Roh as discussed above are incorporated herein.

Roh fails to teach the use of a unit cell controller for controlling charging voltages of the plurality of unit cells.

Nakagawa et al. teach the control of a battery pack consisting of a plurality of cells. The control unit controls the charge current using voltage data from the battery pack (Figure 1; [0006], [0007], [0016], [0017]).

Since Roh is silent on the use or control of the battery system he teaches, it would be desirable to have a control unit to control the power generated by the battery system.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the control unit of Nakagawa et al. with the battery system of Roh in order to control the power generated.

As for claims 17-19, the control unit of Nakagawa et al. contains a bypass control circuit (Figure 2, [0034], [0046]). The control unit controls the bypass circuit with a resistor, as seen in Figure 2.

5. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roh in view of Nakagawa et al. as applied to claims 1 and 13 above, and further in view of Wariishi et al. (US Patent Number 6,406,817).

The teachings of Roh and Nakagawa et al. as discussed above are incorporated herein.

Regarding claim 14, Roh and Nakagawa et al. fail to teach the use of a socket to connect the tabs to the control unit.

Wariishi et al. teach that fixing the tabs with a socket to a safety circuit facilitates removal of the socket when desired (column 21, lines 44-65).

The use of the socket as taught by Wariishi et al. would be desirable to connect the tabs to the control unit of Roh and Nakagawa et al. in order to facilitate easy removal.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the socket of Roh with the tabs and control unit of Roh and Nakagawa et al. in order to facilitate easy removal.

As for claim 15, the socket of Wariishi et al. is connected to a safety circuit. The control unit of Nakagawa et al. includes a safety circuit, thus the socket of Wariishi et al. as connected to a safety circuit would also be connected to a control unit, as some sort of control unit would be needed to ensure that the safety circuit was correctly operational.

Regarding claim 16, the disclosed invention is taught except for the rows on the opposite side of the stack attached to the control unit by a socket on the opposite side

of the stack. It would have been obvious to one having ordinary skill in the art at the time of the invention to place tabs and a control circuit on the opposite side of the stack, since it has been held that rearranging parts of an invention involves only routine skill in the art. MPEP 2144 (VI)

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PATRICK JOSEPH RYAN  
SUPERVISORY PATENT EXAMINER

Alix Elizabeth Echelmeyer  
Examiner  
Art Unit 1745